

DESIGN, MANUFACTURE, TESTING, AND DEPLOYMENT OF A CROSS HAUL BUCKET FOR THE INDEPENDENCE HUB

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ABSTRACT

This paper provides details on the design, manufacturing, analysis, testing, and deployment of cross-haul buckets used for the pick up, cross haul, and hang off installation of the Independence Hub Steel Catenary Risers in MC 920 in 8000 feet of water depth. The objective in testing was to measure the load capacity of the cross-haul buckets and verify that they were fit for service.

The buckets were tested at Stress Engineering Services, Inc. who designed the set up. The test subjects included 20-inch, 10-inch / 8-inch, cross-haul buckets. Strain gages were applied to the lugs of the samples to measure strain during loading. Loads corresponding to the flooded weight of the SCR with dynamic load factors were applied to the samples 15-degrees from vertical (8-inch bucket) and 22-degrees from vertical (20-inch bucket). A 625 mT (1,378 kips) load was applied to the three 10-inch / 8-inch cross-haul buckets and no significant through-wall yielding of the bucket was observed. For the 20-inch cross-haul bucket, a load of 1064 mT (2,345 kips) was applied and no significant through-wall yielding of the bucket was observed, indicating the buckets were adequately design for their intended service.

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